November 19, 1986

CD-86-18 (HDDE)

Dear Manufacturer:

Subject: Reclassification of Smoke Puff Limiters

The Engine Manufacturers Association (EMA) recently requested the reclassification of "smoke puff limiters" which are incorporated on turbocharged diesel heavy-duty engines. In response to this request these devices have been classified as component parts of engine modification control systems.

Since this reclassification is likely to be of general interest, copies of the EMA request and the EPA response are being provided to all diesel heavy-duty engine manufacturers as enclosures to this letter.

If you have any questions regarding this correspondence, please contact Mr. J. Bozek at (313) 668-4292.

Sincerely yours,

Robert E. Maxwell, Director
Certification Division
Office of Mobile Sources

Enclosures

Engine
Manufacturers
Association

One Illinois Center
111 East Wasker Drive
Chicago, Illinois 60601
312/664-6610

September 11, 1986

Mr. R. Maxwell, Director
Certification Division
Office of Mobile Source Pollution Control
U.S. Environmental Protection Agency
2565 Plymouth Road
Ann Arbor, MI 48105

Dear Mr. Maxwell:

The Engine Manufacturers Association hereby requests the EPA to reclassify the smoke puff limiter (SPL) as an auxiliary emission control device and not an exhaust control system. This request is based on the following justification:

An auxiliary emission control device is defined in Advisory Circular 24 as "any element of design which senses temperature, vehicle speed, engine rpm, transmission gear, manifold vacuum, or any other parameter for the purpose of activating, modulating, delaying or deactivating the operation of any part of the emission control system." The SPL is a device which senses low manifold or boost pressure to reduce the fuel pump flow, a device very similar to the vacuum operated throttle kicker used on gasoline-fueled engines.

Advisory Circular 20A-1 classified emission control systems "by grouping components whose purpose is to achieve emission control in fundamentally the same manner." The control systems listed in A/C 20B-1, except engine modification, either add exhaust gas during combustion or promote further reduction of emission after the exhaust leaves the combustion chamber. In contrast, the SPL does not use a unique method to control smoke, but modulates the fuel flow through the fuel injection pump.

The addition of the SPL falls within the definition of engine modification found in A/C 20B-1: "A control system which is intended to control exhaust emissions by the design of fundamental engine parameters and components without the addition of any major hardware. . ." The SPL is not considered a piece of major hardware but is a modification of the fuel pump, a basic engine component.

We, therefore, request that the smoke puff limiter be reclassified as an auxiliary emission control device.

Cordially yours,

Thomas C. Young
Executive Director

TCY/cs

cc: Mr. T. Ball
Mr. J. Bozek
Mr. K. D. Drachand
Mr. T. Snyde
Certification Activities Subcommittee

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

ANN ARBOR, MICHIGAN 48105

October 17, 1986

Thomas C. Young, Executive Director
Engine Manufacturers Association
One Illinois Center
111 E. Wacker Drive
Chicago, IL 60601

Dear Mr. Young:

This is in response to the September 11, 1986 Engine Manufacturers Association (EMA) request for the reclassification of smoke puff limiters (SPL's) on turbocharged diesel heavy-duty engines. This letter documents the information that Mr. J. Bozek of my staff provided to EMA during his October 9, 1986 telephone call regarding this request.

As Mr. Bozek explained, we agree with EMA that the present "emission control device" classification is not consistent with the guidance that is provided in MSAPC Advisory Circular (A/C) No. 20B-1, Determination of Engine Families and Classification of Emission Control Systems for Heavy-Duty Engines. However, we do not concur with the suggestion that SPL's should be reclassified as auxiliary emission control devices. This classification is not applicable because SPL's do not activate, modulate, delay or deactivate any of the specific emission control systems that are identified in A/C NO. 20B-1 or other type of device or component that is added to the engine for the specific purpose of controlling exhaust emissions.

According to the definitions in A/C No. 20B-1, SPL's are most appropriately classified as engine modification control system components. Paragraph G.1. defines "Engine Modification" as a control system which is intended to control exhaust emissions by the design of fundamental engine parameters. Carburetion is listed as one example of a fundamental parameter. Injection is a comparable parameter. The comparability between carburetted and injected systems extends to their respective component

parts. For example, power valves in carburetted systems and SPL's in turbocharged diesel injection systems (a) react to the changes in manifold pressure which occur when the throttle is rapidly moved to the full open position, (b) have an effect on the fuel induction system, and (c) reduce exhaust emissions by reducing the fuel flow rate. Power valves reduce the fuel flow rate when the manifold absolute pressure decreases to a specific deactivation threshold value as a result of the

increase in the engine speed. SPL's limit the maximum fuel flow rate until the manifold pressure increases to a specific deactivation threshold value as a result of the increase in the turbocharger speed.

If you have any questions concerning this letter, please contact Mr. Bozek at (313) 668-4292.

Sincerely,

Thomas M. Ball, Chief
Certification Branch
Certification Division
Office of Mobile Sources